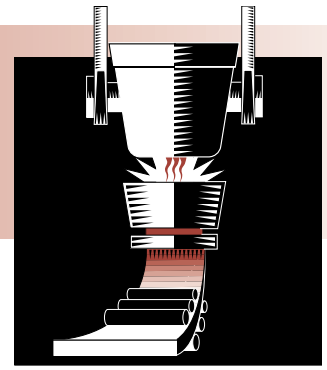


STEEL

Project Fact Sheet



DETECTION OF RADIOISOTOPES IN STEEL SCRAP

BENEFITS

- ▲ Minimize the probability that radioactive sources will contaminate scrap and/or equipment
- ▲ Improve the ability of industry to deal with the problem of radiation in steel scrap
- ▲ Using steel scrap instead of iron ore to make new steel will save over 10 million Btu/ton

APPLICATIONS

Radiation detectors are widely used in the scrap metal industry and steelmaking industry. Improved detection procedures and technology will minimize the potential of material or equipment contamination and the risk of exposure to personnel.

USING THE U.S. DEPARTMENT OF ENERGY'S EXPERTISE IN RADIOACTIVITY TO ADDRESS CONCERNS ABOUT HIDDEN RADIOISOTOPE SOURCES IN STEEL SCRAP

Steel manufacturers are faced with the catastrophic risk of melting a hidden radiation source in steel scrap. Since 1982, there have been 50 confirmed melts of radioactive materials. Of these, 29 occurred in the U.S. Total clean up costs associated with melting a radioactive source typically exceed \$10 million and can be as high as \$24 million per incident. There is also the potential for personnel exposure. This work has several benefits: 1) Provide key managers in the scrap supply and steel manufacturing industries with a better understanding of the science of radiation detection so they may more effectively set industry policy and procedures on radiation detection; 2) This knowledge and expert consultation will also lead to improved radiation detector deployment strategies; and 3) In the long-run, research and development of radiation detection technology will minimize the probability of processing an undetected radiation source.

DETECTION OF RADIOISOTOPES



This case concerns the detection of hidden radiation sources in steel scrap.



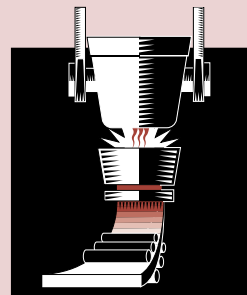
Project Description

Goal: There are two primary objectives of this project: 1) to improve management's understanding of the key issues in radiation detection in steel scrap; and 2) to minimize the probability that an undetected radiation source will enter the steel recycling process.

The increased globalization of steel markets has increased the risk that a radiation source could inadvertently enter the steel recycle stream. Radiation detectors are used to discover these sources. A basic understanding by management of the capabilities and limitations of current radiation detection technology would significantly improve the industry's ability to deal with this problem. In addition, technology advances should be able to further reduce the risk of a catastrophic event such as melting or shredding a hidden radiation source.

Progress and Milestones

- ▲ A workshop on the Detection of Radioisotopes in Metal Scrap was held in Dallas, TX June 1998.
- A report on the above workshop is available at:
<http://hgiglib.lbl.gov/esd/SteelWorkshop/REPORT.html>.
- Seminars/training courses on the Detection of Radioisotopes in Metal Scrap are scheduled for early 1999.
- Developing framework for research and development for improved radiation detection technology in 1999.



WORKSHOP PARTICIPANTS

Agreement States (Conference of Radiation Control Program Directors)

American Iron and Steel Institute

Department of Energy

Department of Energy National Laboratories

Environmental Protection Agency

Institute of Steel Recycling Industries

Nuclear Regulatory Commission

Radiation Monitoring Equipment Suppliers

Steel Manufacturers Association

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